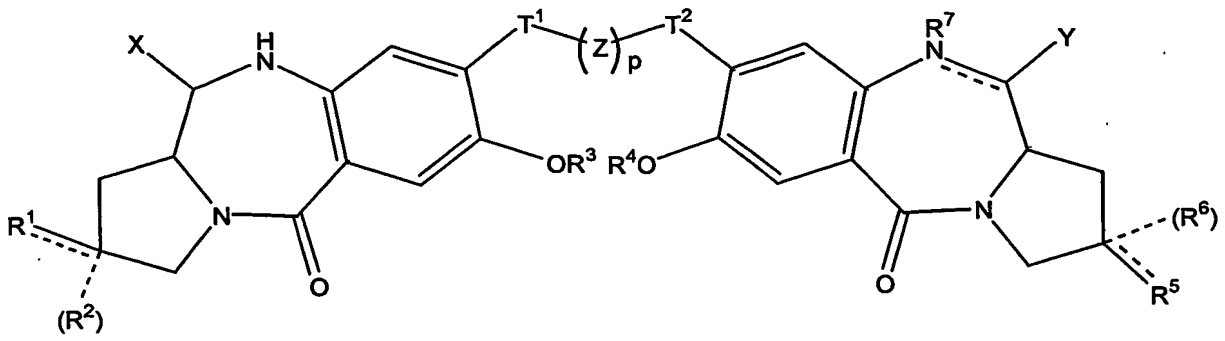
WHAT IS CLAIMED IS:

1. A compound of Formula I:



(Formula I)

wherein X is a substituent selected from the group consisting of an OH, an ether, a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid-derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the

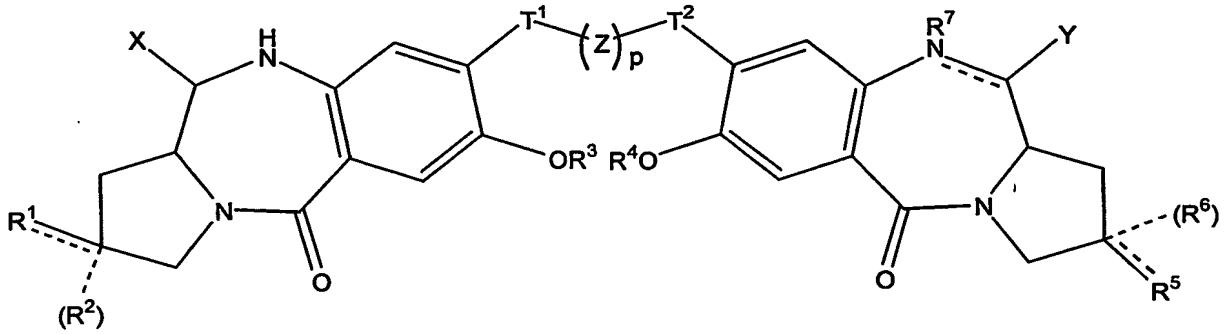
bond is a single bond, R^1 and R^2 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle; and

wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof,

wherein the compound is a solid.

2. A compound of Formula I:



(Formula I)

wherein X is a substituent selected from the group consisting of an OH, an ether, a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid-derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

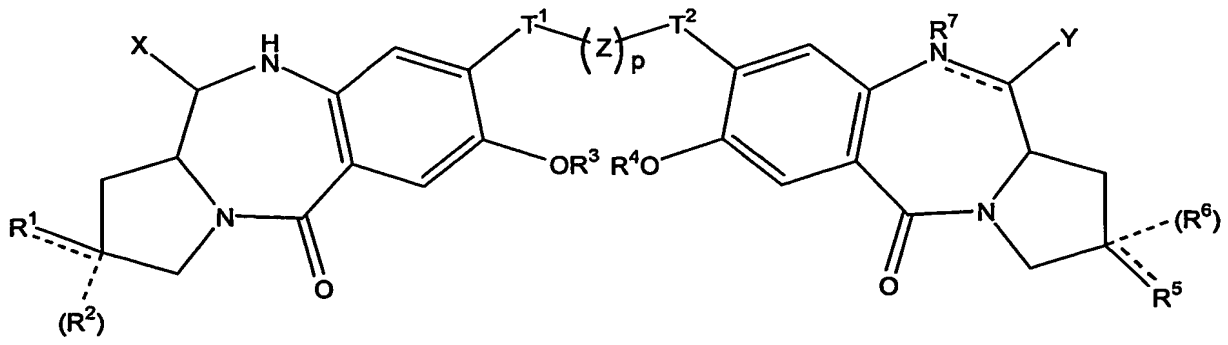
wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle; and

wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof;

provided that, when each of R^1 and R^5 is CH_2 attached by a double-bond, R^2 and R^6 are absent, R^3 and R^4 are CH_3, R^7 is H, T^1 and T^2 are both O, Z is CH_2, and p is 3, then X and Y are not both methoxy, both ethoxy, or both hydroxyl; and when each of R^1, R^2, R^5, and R^6 are H, then X and Y are not both sulfide or both ether.

3. A compound of Formula I:



(Formula I)

wherein X is a substituent selected from the group consisting of a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid-derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

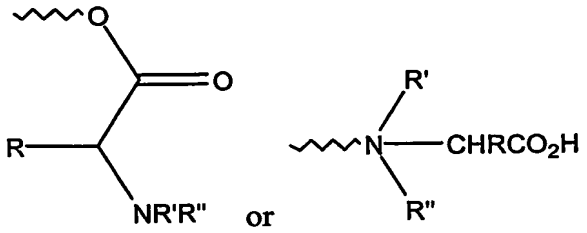
wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2-C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of a C_1-C_8 alkyl, an aryl, and a heterocycle; and

wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof.

4. The compound of any of claims 1-3, wherein the amino acid-derived group has the structure:

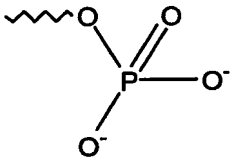


wherein each of R, R', and R" is independently selected from the group consisting of H, a C_1-C_8 alkyl optionally substituted with an amine or a carboxylate; an aryl; an aryl alkyl; and a heterocycle.

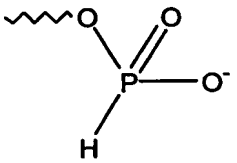
5. The compound of claim 4, wherein R is H, CH_3, benzyl, $(CH_2)_4$-NH_2, or CH_2COOH.

6. The compound of any of claims 1-5, wherein the phosphorus-containing group is a phosphoric group, a phosphorus group, a phosphonic acid group, or a phosphonous acid group.

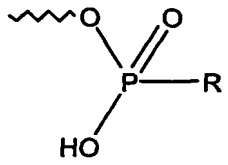
7. The compound of claim 6, wherein the phosphorus-containing group has the structure:



8. The compound of claim 6, wherein the phosphorus-containing group has the structure:

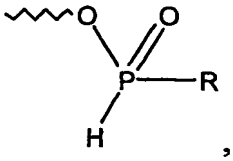


9. The compound of claim 6, wherein the phosphorus-containing group has the structure:



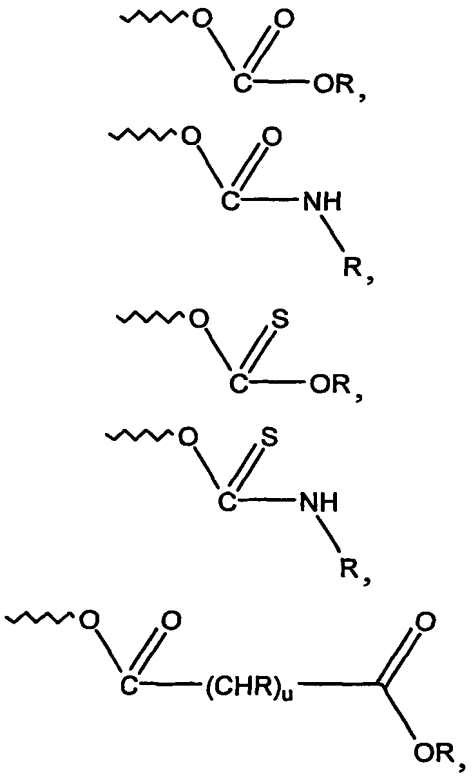
wherein R is C_1-C_8 alkyl optionally substituted with an aryl, a heterocycle, an alkoxy, a halo, an amine, or carboxylate; an aryl; or a heterocycle.

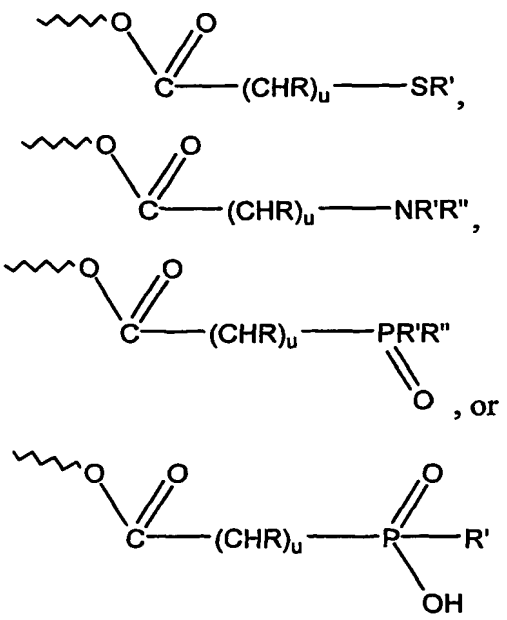
10. The compound of claim 6, wherein the phosphorus-containing group has the structure



wherein R is C_1-C_8 alkyl optionally substituted with an aryl, a heterocycle, an alkoxy, a halo, an amine, or carboxylate; an aryl; or a heterocycle.

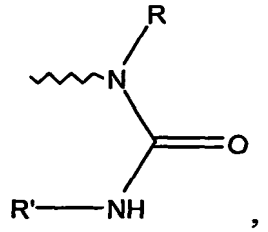
11. The compound of any of claims 1-10, wherein X is selected from the group consisting of:





wherein each of R, R', and R" is independently selected from the group consisting of H; C_1-C_8 alkyl optionally substituted with an aryl, a heterocycle, an alkoxy, a halo, an amine, or carboxylate; an aryl; and a heterocycle, and wherein u is 1 to about 16.

12. The compound of any of claims 1-10, wherein X is an amide having the structure:

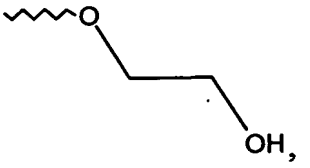


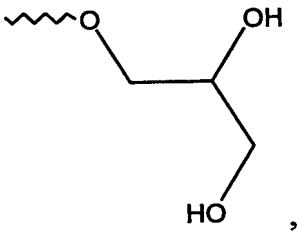
wherein each of R and R' is independently H; C_1-C_8 alkyl optionally substituted with an aryl, a heterocycle, an alkoxy, a halo, an amine, or carboxylate; an aryl; or a heterocycle.

13. The compound of any of claims 1, 2, or 4-10, wherein X is a monohydroxylic or a polyhydroxylic group.

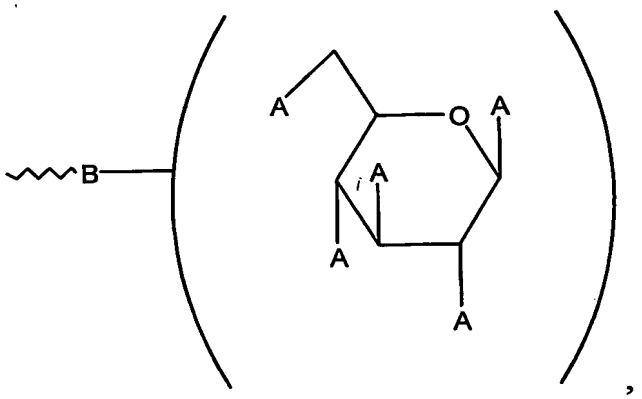
14. The compound of claim 13, wherein the monohydroxylic group or polyhydroxylic group is derived from a diol, a polyol, a sorbitol, a polyethylene glycol (PEG), a polymer, or a sugar.

15. The compound of claim 13, wherein the monohydroxylic group or polyhydroxylic group has the structure:



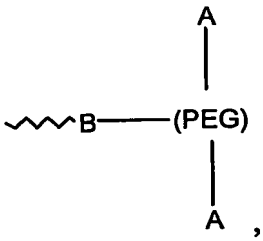


,



,

wherein B is O, B is attached to the cyclopentyloxy ring at any carbon of the ring, at the carbon to which B is attached, A is H, and, at the carbons where B is not attached, A is –OH; or



,

wherein B is O, B is attached to any carbon of PEG, at the carbon to which B is attached, A is H, and, at the carbons where B is not attached, A is –OH.

16. The compound of any of claims 1-15, wherein each of T^1 and T^2 is O, p is 3 and Z is $-CH_2-$.

17. The compound of any of claims 1-16, wherein R^1 and R^2 are not both H.

18. The compound of any of claims 1-17, wherein each of R^3 and R^4 is a C_1-C_8 alkyl optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, H, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl.

19. The compound of claim 18, wherein each of R^3 and R^4 is a C_1-C_4 alkyl optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl.

20. The compound of any of claims 1-19, wherein each of R^3 and R^4 is CH_3.

21. The compound of any of claims 1-19, wherein R^8 is H.

22. The compound of any of claims 1-21, wherein the bond between R^1 and the carbon to which R^1 is attached is a double bond and R^1 is CH_2.

23. The compound of any of claims 1-22, wherein the bond between R^5 and the carbon to which R^5 is attached is a double bond and R^5 is CH_2.

24. The compound of any of claims 1, 2, 4-10, or 16-23, wherein each of X and Y is OH.

25. The compound of any of claims 1, 2, 4-10, or 16-24, wherein X is OH and Y is H.

26. The compound of any of claims 1, 2, 4-10, or 16-25, wherein X is OR and R is an alkyl.

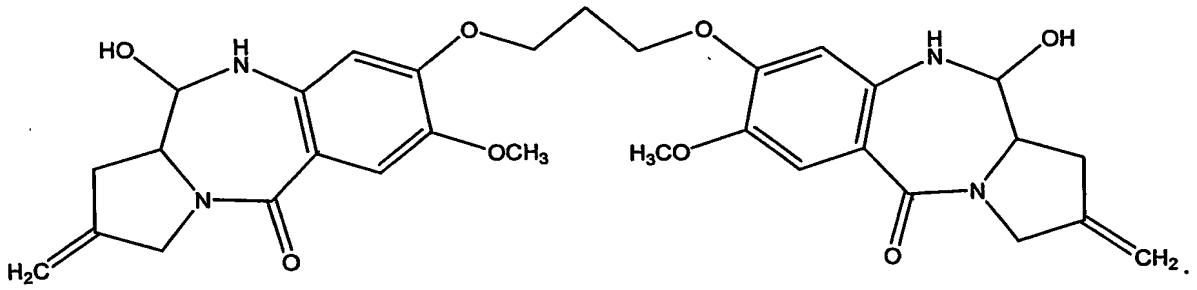
27. The compound of claim 26, wherein R is a C_1-C_8 alkyl.

28. The compound of claim 27, wherein R is methyl, ethyl, or isopropyl.

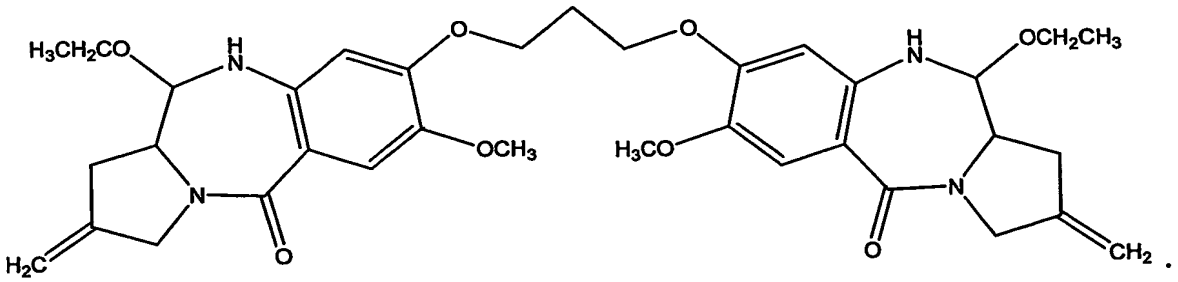
29. The compound of claim 27, wherein R is *t*-butyl.

30. The compound of any of claims 1-23 and 26-29, wherein Y is the same as X.

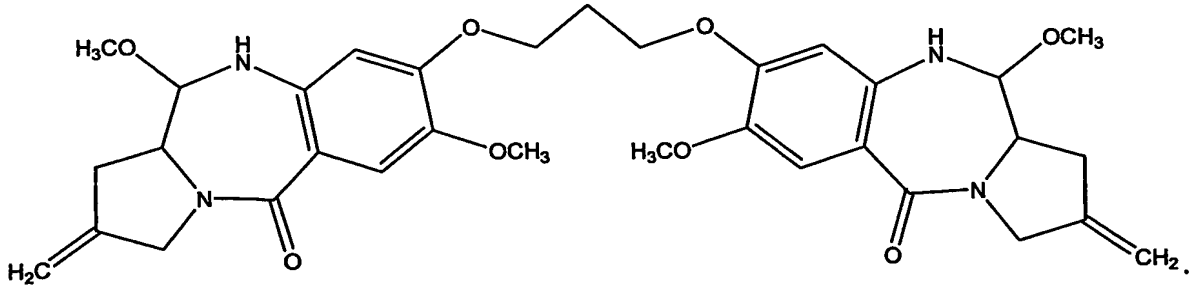
31. The compound of claim 1, wherein the compound is



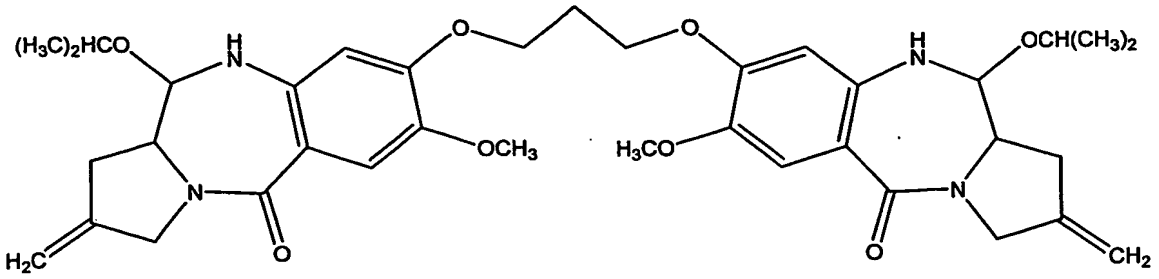
32. The compound of claim 1, wherein the compound is



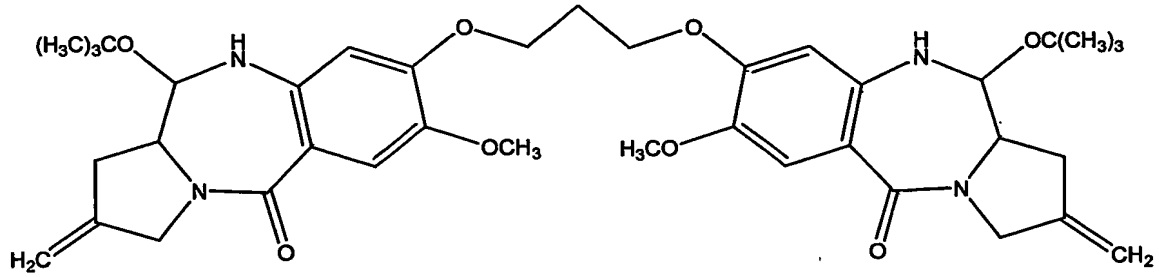
33. The compound of claim 1, wherein the compound is



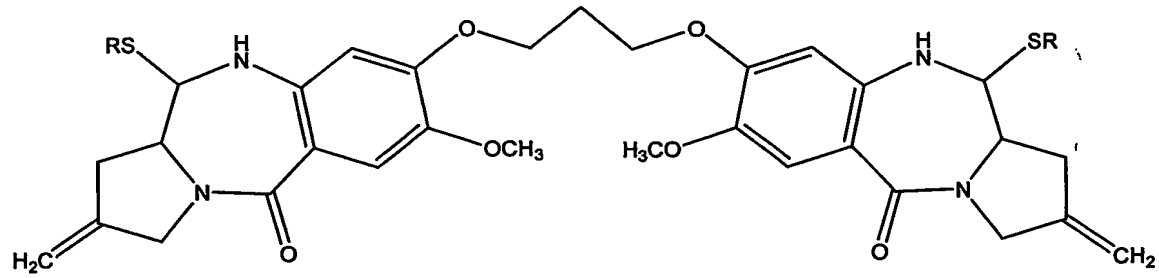
34. The compound of claim 1 or 2, wherein the compound is



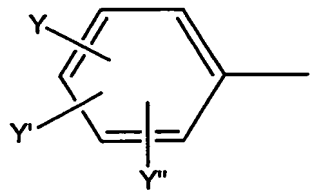
35. The compound of claim 1 or 2, wherein the compound is



36. The compound of any of claims 1-3, wherein the compound is

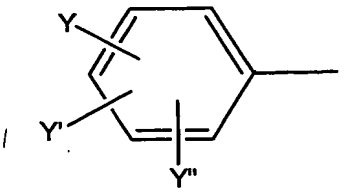


wherein R is an alkyl; a C_2-C_{24} alkenyl; a cyclohexylalkyl; a C_3-C_{26} alkoxyacetyl; a naphthalenalkyl optionally substituted with methyl or halogen; a phenyl (C_3-C_{26} alkenyl), wherein the phenyl is optionally substituted with methyl or halogen; a cinnamyl; a pyridinealkyl optionally substituted with methyl or halogen; a dihydropyridine alkyl optionally substituted with C_1-C_{24} alkyl; a thiophenealkyl optionally substituted with methyl or halogen; an aryl; an allyl; a furanalkyl optionally substituted with methyl or halogen; cysteine; glutathione; or a group of structure



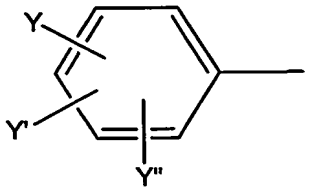
wherein each of Y and Y' is independently hydrogen, C_1-C_{24} alkyl, C_1-C_{24} alkoxy, or halogen, or Y and Y' together form 3,4-methylenedioxy, and Y" is hydrogen, C_1-C_{24} alkyl, C_1-C_{24} alkoxy or halogen.

37. The compound of claim 36, wherein R is



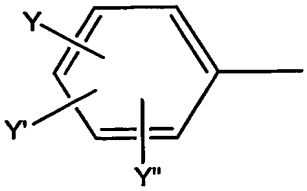
and wherein each of Y and Y' is independently hydrogen, C_1-C_8 alkyl, C_1-C_8 alkoxy, or halogen, or Y and Y' together form 3,4-methylenedioxy, and Y" is hydrogen, C_1-C_8 alkyl, C_1-C_8 alkoxy or halogen.

38. The compound of claim 37, wherein R is



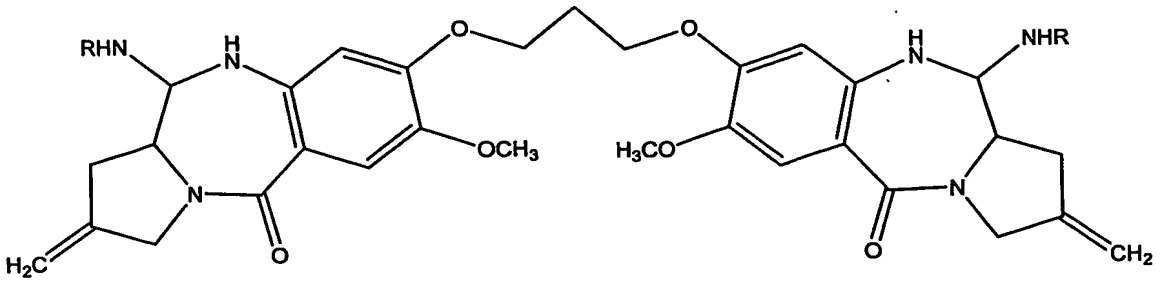
and wherein Y and Y' are hydrogen, and Y" is a C_1-C_8 alkyl or a C_1-C_8 alkoxy.

39. The compound of claim 37, wherein R is

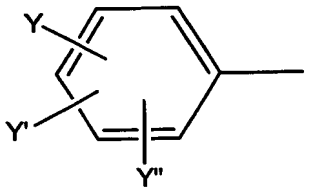


and wherein Y and Y' are hydrogen, and Y" is hydrogen, methyl, or methoxy.

40. The compound of any of claims 1-3, wherein the compound is



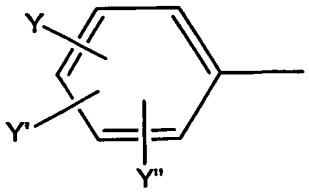
wherein R is an alkyl; a cycloalkyl; a C_2-C_{24} alkenyl; a cyclohexylalkyl; a C_3-C_{26} alkoxyacetyl; a naphthalenalkyl optionally substituted with methyl or halogen; phenyl (C_2-C_{24} alkenyl), wherein the phenyl is optionally substituted with methyl or halogen; cinnamyl; pyridinealkyl optionally substituted with methyl or halogen; dihydropyridine alkyl optionally substituted with C_1-C_{24} alkyl; thiophenealkyl optionally substituted with methyl or halogen; an aryl; an allyl; furanalkyl optionally substituted with methyl or halogen; or a group of structure



,

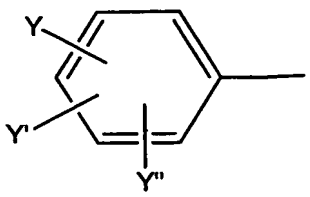
wherein each of Y and Y' is independently hydrogen, C_1-C_{24} alkyl, C_1-C_{24} alkoxy, or halogen, or Y and Y' together form 3,4-methylenedioxy, and Y" is hydrogen, C_1-C_{24} alkyl, C_1-C_{24} alkoxy or halogen.

41. The compound of claim 40, wherein R is



and wherein each of Y and Y' is independently hydrogen, C_1-C_8 alkyl, C_1-C_8 alkoxy, or halogen, or Y and Y' together form 3,4-methylenedioxy, and Y" is hydrogen, C_1-C_8 alkyl, C_1-C_8 alkoxy or halogen.

42. The compound of claim 41, wherein R is



and wherein Y and Y' are hydrogen, and Y" is a hydrogen, a C_1-C_8 alkyl, or a C_1-C_8 alkoxy.

43. The compound of claim 40, wherein R is a C_1-C_8 alkyl.

44. The compound of claim 43, wherein R is *t*-butyl.

45. The compound of any of claims 1-44, wherein the compound is isolated or purified.

46. The compound of any of claims 2-45, wherein the compound is a solid at room temperature.

47. The compound of any of claims 1-46, wherein the compound is a crystalline solid.

48. A pharmaceutical composition comprising a compound of any of claims 1-47 and a pharmaceutically acceptable carrier.

49. A method of inhibiting the growth of a cell, which method comprises administering to the cell in an amount effective to inhibit the growth of the cell a compound of any of claims 1-47.

50. The method of claim 49, wherein the cell is in a host.

51. The method of claim 50 wherein the host is a mammal.

52. The method of claim 51, wherein the mammal is a human.

53. The method of any of claims 50-52, wherein the host is afflicted with a disease caused by hyperproliferation and the method effectively treats the disease.

54. The method of claim 53, wherein the disease is resistant to treatment with cisplastin.

55. The method of claim 53 or 54, wherein the disease is cancer.

56. The method of claim 55, wherein the cancer is ovarian cancer, colon cancer, melanoma, glioma, or breast cancer and the cancer is optionally resistant to treatment with cisplatin.

57. A method of treating a viral, parasitic, or bacterial infection of a cell, which method comprises administering to the cell in an amount effective to treat a viral, parasitic, or bacterial infection a compound of any of claims 1-47.

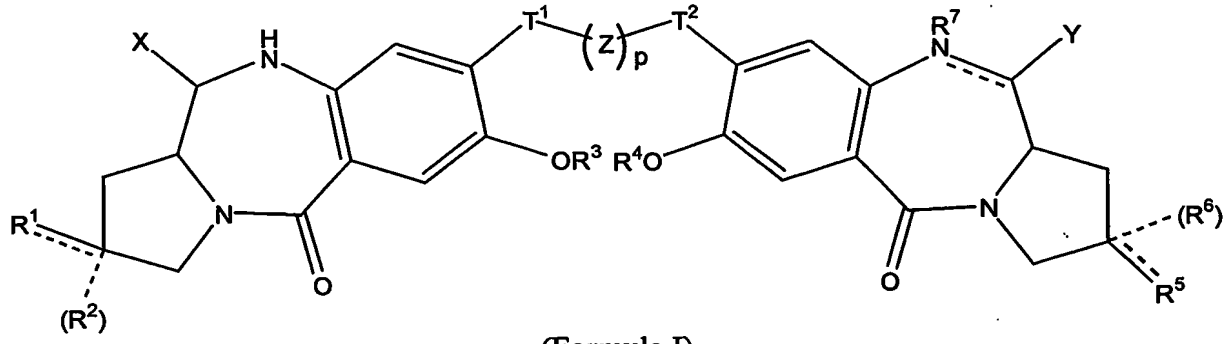
58. The method claim 57, wherein the cell is in a host.

59. The method of claim 58, wherein the host is a mammal.

60. The method of claim 59, wherein the mammal is a human.

61. The method of any of claims 59-60 wherein the host is afflicted with a disease caused by the viral, parasitic, or bacterial infection and the method effectively treats the disease.

62. A method of preparing a compound of Formula I



(Formula I)

wherein X is OH,

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is OH;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle; and

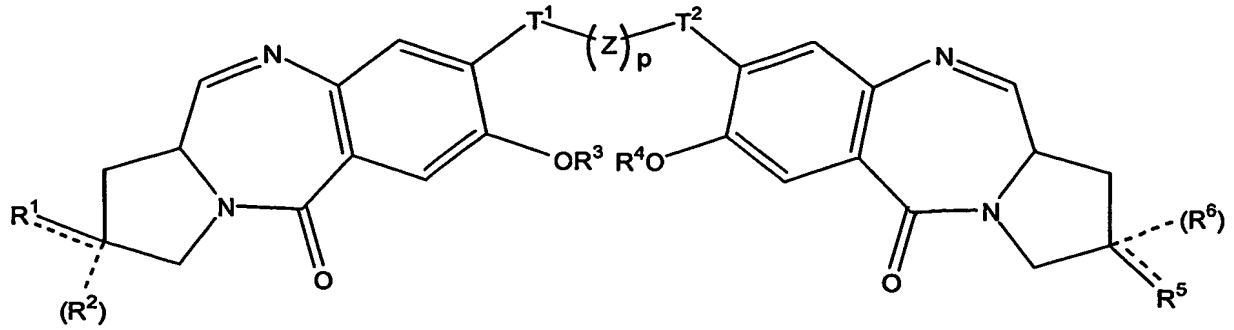
wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof; and

wherein the compound is a solid;

which method comprises:

(a) providing a compound of Formula II:



(Formula II)

wherein the definitions of R^1, R^2, R^3, R^4, R^5, R^6, T^1, T^2, Z, and p are the same as those for Formula I; and

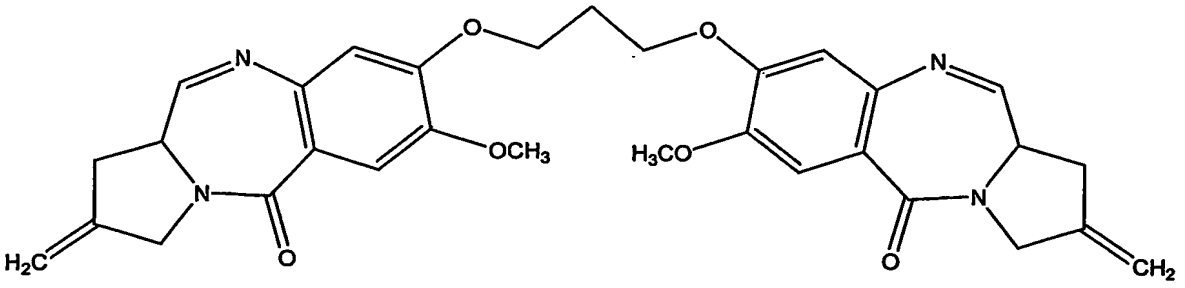
(b) contacting the compound of Formula II with water, whereby the solid compound of Formula I is formed.

63. The method of claim 62, wherein compound of Formula II is contacted with water in a solvent system comprising a water-miscible aprotic solvent and water.

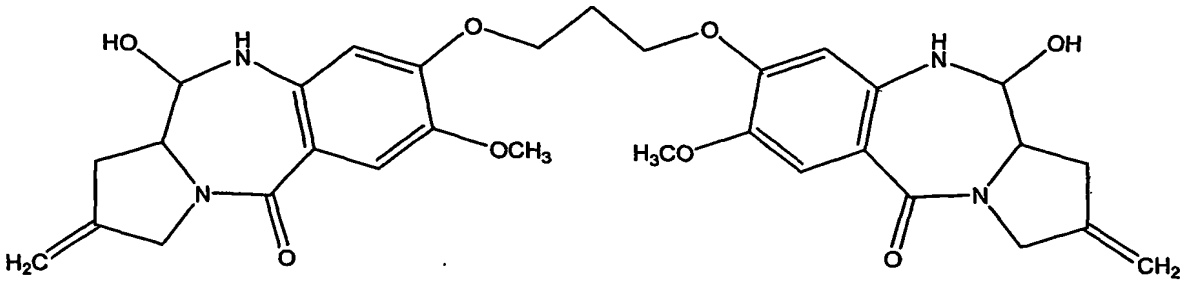
64. The method of claim 63, wherein the water-miscible aprotic solvent is acetonitrile.

65. The method of claim 62 or 63, wherein the solvent system comprises at least 10% (v/v) water.

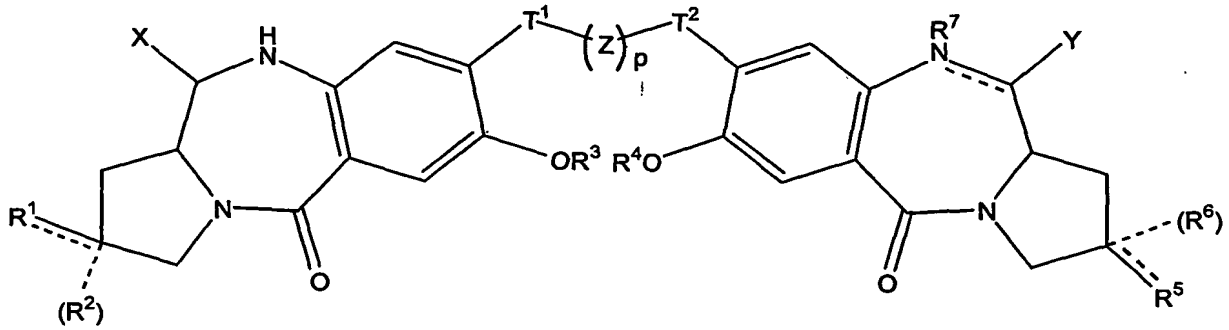
66. The method of any of claims 62-65, wherein the compound of Formula II is



67. The method of any of claims 62-66, wherein the compound of Formula I is



68. A method of preparing a compound of Formula I



(Formula I)

wherein X is a substituent selected from the group consisting of an ether, a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid- derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group

consisting of an aryl, a heterocycle, H, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle; and

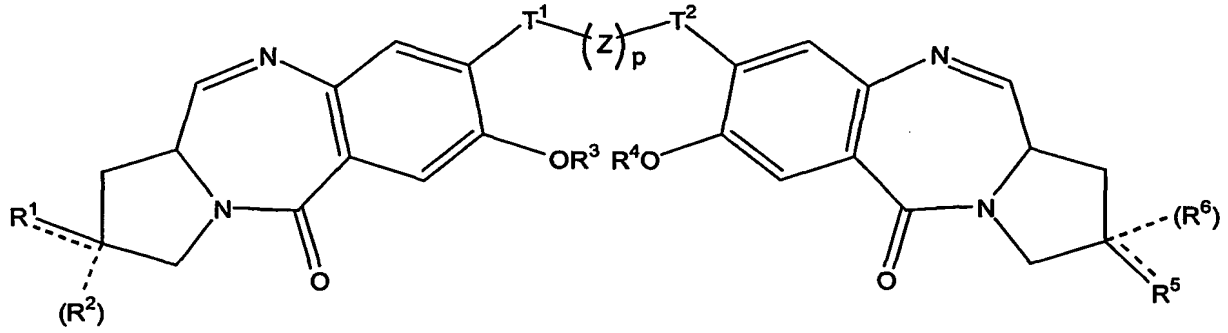
wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof; and

wherein the compound is a solid.

which method comprises:

(a) providing a compound of Formula II:



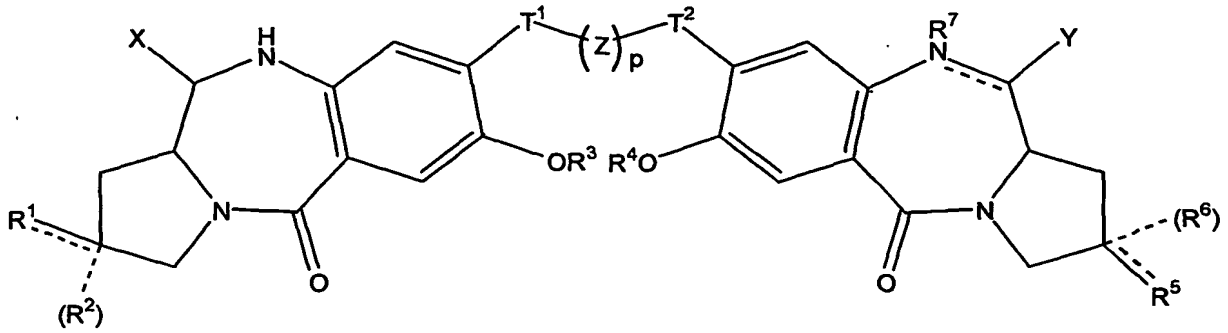
(Formula II)

wherein the definitions of R^1, R^2, R^3, R^4, R^5, R^6, T^1, T^2, Z, and p are the same as those for Formula I; and

(b) combining the compound of Formula II with a nucleophilic organic reactant, wherein the nucleophilic part of the nucleophilic organic reactant provides X,

whereby the solid compound of Formula I is formed.

69. A method of preparing a compound of Formula I



(Formula I)

wherein X is a substituent selected from the group consisting of an OH, an ether, a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid-derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle; and

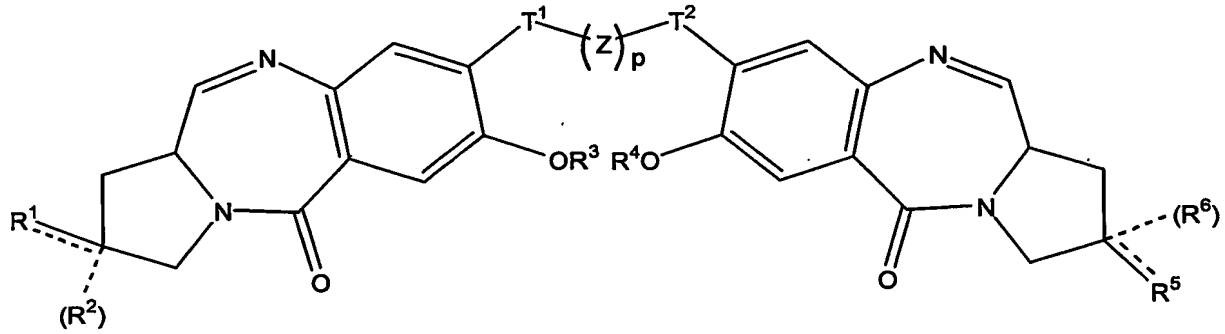
wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of H, C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof; and

provided that, when each of R^1 and R^5 is CH_2 attached by a double-bond, R^2 and R^6 are absent, R^3 and R^4 are CH_3, R^7 is H, T^1 and T^2 are both O, Z is CH_2, and p is 3, then X and Y are not both methoxy, both ethoxy, or both hydroxyl; and when each of R^1, R^2, R^5, and R^6 are H, then X and Y are not both sulfide or both ether;

which method comprises:

(a) providing a compound of Formula II:



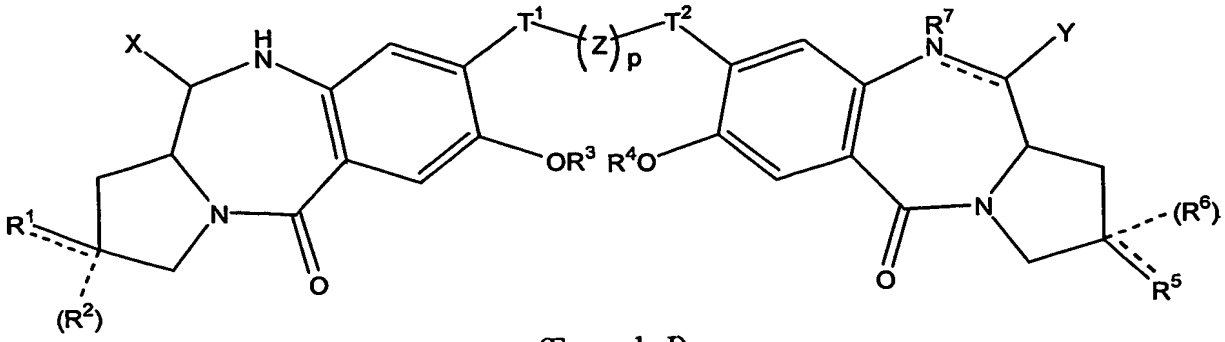
(Formula II)

wherein the definitions of R^1, R^2, R^3, R^4, R^5, R^6, T^1, T^2, Z, and p are the same as those for Formula I; and

(b) combining the compound of Formula II with a nucleophilic organic reactant other than methanol or ethanol, wherein the nucleophilic part of the nucleophilic organic reactant provides X,

whereby the solid compound of Formula I is formed.

70. A method of preparing a compound of Formula I



(Formula I)

wherein X is a substituent selected from the group consisting of a silyl ether, a trialkyl silyl ether, an ester, a carbonate, a carbamate, a thiocarbamate, a cyclic carbamate, a cyclic thiocarbamate, an acetate, SH, a sulfide, a sulphoxide, a sulphone, a sulphite, a bisulphite, a sulphonamide, an amine, an amide, an azido, a cyano, a halo, a triphenylphosphonium, a silyl, a trialkyl silyl, an amino acid-derived group, and a phosphorus-containing group;

wherein the bond between the carbon to which Y is attached and the N of NR^7 to which the carbon is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^7 is absent and Y is H, and, when the bond is a single bond, R^7 is H and Y is a substituent selected from the group defined for X, wherein Y is optionally the same as X;

wherein each of T^1 and T^2 is independently O, S, or NR^8;

wherein Z is a divalent radical of an alkane, an alkene, or an alkyne, any of which optionally contains a heteroatom or carbonyl and any of which is substituted or unsubstituted;

wherein p is an integer that is greater than or equal to 2;

wherein each of R^3, R^4, and R^8 is independently a hydrogen; a C_1-C_{24} alkyl, C_2-C_{24} alkenyl, or C_2 -C_{24} alkynyl, optionally substituted with a group selected from the group consisting of an aryl, a heterocycle, and an amine; or an aryl optionally substituted with an alkyl, an aryl, an alkoxy, a halo, an amine, a hydroxy, or a trifluoromethyl;

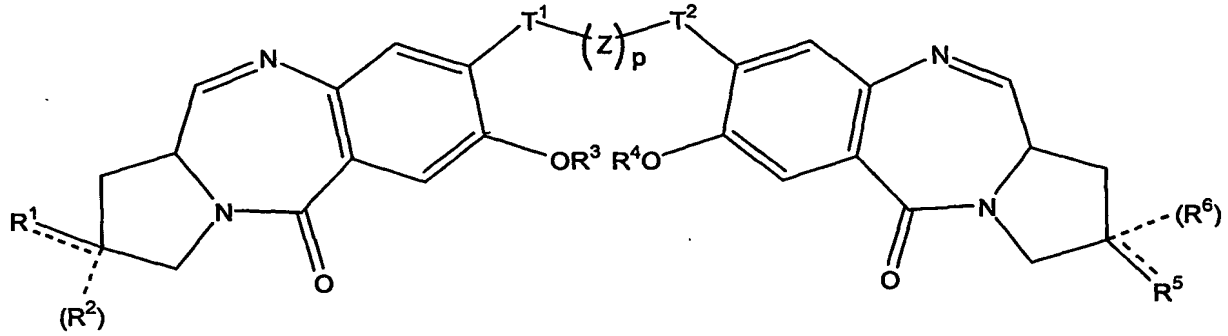
wherein the bond between R^1 and the carbon to which R^1 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^2 is absent and R^1 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^1 and R^2 are independently selected from the group consisting of C_1-C_8 alkyl, aryl, and a heterocycle; and

wherein the bond between R^5 and the carbon to which R^5 is attached is a single bond or a double bond, wherein, when the bond is a double bond, R^6 is absent and R^5 is a divalent radical derived from an alkane, an aromatic hydrocarbon, or a heterocycle, and when the bond is a single bond, R^5 and R^6 are independently selected from the group consisting of C_1-C_8 alkyl, aryl, and a heterocycle;

or a salt thereof; and

which method comprises:

(a) providing a compound of Formula II:



(Formula II)

wherein the definitions of R^1, R^2, R^3, R^4, R^5, R^6, T^1, T^2, Z, and p are the same as those for Formula I; and

(b) combining the compound of Formula II with a nucleophilic organic reactant, wherein the nucleophilic part of the nucleophilic organic reactant provides X, and

whereby the solid compound of Formula I is formed.

71. The method of any of claims 62-70, wherein the compound of Formula I is a solid at room temperature.

72. The method of any of claims 62-71, wherein the compound of Formula I is a crystalline solid.

73. The method of any of claims 62-72, wherein the compound of Formula I is precipitated.

74. The method of any of claims 68-73, wherein the nucleophilic reactant is a thiol.

75. The method of claim 74, wherein the nucleophilic reactant is a thiolphenol, an alkylthiolphenol, or an alkoxythiolphenol.

76. The method of any of claims 68-73, wherein the nucleophilic reactant is an amine.

77. The method of claim 76, wherein the nucleophilic reactant is an alkylamine.

78. The method of any of claims 63-77 further comprising isolating the compound of Formula I.

79. The method of claim 78, wherein the compound of Formula I is isolated by evaporation.

80. The method of any of claims 68-79, wherein the compound of Formula II is